

WHAT IS CLAIMED IS:

1. A wiring board obtained by filling a copper paste in a via hole formed on a ceramic green sheet and firing it to form an insulating layer and a via conductor, the copper paste comprising a copper powder, an organic vehicle and at least one selected from the group consisting of: a ceramic particle having an average particle size of 100 nm or less; and an Fe_2O_3 particle, wherein the copper paste comprises from 6 to 20 parts by mass of the organic vehicle per 100 parts by mass of the copper powder.

2. A wiring board obtained by filling a copper paste in a via hole formed on a ceramic green sheet and firing it to form an insulating layer and a via conductor, the copper paste comprising a copper powder, an organic vehicle and a ceramic particle having an average particle size of 100 nm or less, wherein the copper paste comprises from 6 to 20 parts by mass of the organic vehicle per 100 parts by mass of the copper powder.

3. A wiring board obtained by filling a copper paste in a via hole formed on a ceramic green sheet and firing it to form an insulating layer and a via conductor, the copper paste comprising a copper powder, an organic vehicle and an Fe_2O_3 particle, wherein the copper paste comprises from 6

to 20 parts by mass of the organic vehicle per 100 parts by mass of the copper powder.

4. The wiring board according to claim 1, wherein the via conductor comprises an inorganic matter comprising constituents of the ceramic particle and having a size of 10 μm or less.

5. The wiring board according to claim 1, wherein the via conductor is exposed to at least one surface of the wiring board and an inorganic matter comprising constituents of the ceramic particle and having a size of 10 μm or less is revealed on the exposed face of the via conductor.

6. The wiring board according to claim 1, wherein the via conductor is exposed to at least one surface of the wiring board and a plating layer is provided on the exposed face of the via conductor.

7. The wiring board according to claim 6, wherein a semiconductor element is mounted on the wiring board and a terminal of the semiconductor element is connected to the via conductor through a joining member.

8. The wiring board according to claims 1, wherein the via conductor is constituted as a thermal via working out to a heat conduction path.

9. A wiring board comprising a via conductor having inside thereof an inorganic matter having a size of 10 μm or less.

10. The wiring board according to claim 9, wherein the via conductor is exposed to at least one surface of the wiring board and an inorganic matter having a size of 10 μm or less is revealed on the exposed face of the via conductor.

11. The wiring board according to claim 9, wherein the via conductor is exposed to at least one surface of the wiring board and a plating layer is provided on the exposed face of the via conductor.

12. The wiring board according to claim 11, wherein a semiconductor element is mounted on the wiring board and a terminal of the semiconductor element is connected to said via conductor through a joining member.

13. The wiring board according to claim 9, wherein

the via conductor is constituted as a thermal via working out to a heat conduction path.

14. The wiring board according to claim 1, wherein the via conductor comprises less than 5.0 parts by mass of an Fe element per 100 parts by mass of the copper element.

15. A wiring board comprising a via conductor having dispersed therein an inorganic matter, wherein in a cross section in a thickness direction of the wiring board, a total area of the inorganic matter having a particle size of 2 μm or more is 10% or less of the sectional area of the via conductor.

16. A wiring board comprising a via conductor having dispersed therein an inorganic matter, wherein in a cross section in a thickness direction of the wiring board, a total area of the inorganic matter having a particle size of 5 μm or more is 5% or less of the sectional area of the via conductor.

17. A wiring board comprising a via conductor having dispersed therein an inorganic matter, wherein in a cross section in a thickness direction of the wiring board, a total area of the inorganic matter having a particle size

of 10 μm or more is 2% or less of the sectional area of the via conductor.

18. A copper paste comprising a copper powder, an organic vehicle and at least one selected from the group consisting of: a ceramic particle having an average particle size of 100 nm or less; and an Fe_2O_3 particle, wherein the copper paste comprises from 6 to 20 parts by mass of the organic vehicle per 100 parts by mass of the copper powder.

19. A copper paste comprising a copper powder, an organic vehicle and at least one selected from the group consisting of: a ceramic particle having an average particle size of 100 nm or less; and an Fe_2O_3 particle, wherein the copper powder has a viscosity of 5,000 to 1,000,000 poises.

20. The copper paste according to claim 18, wherein the ceramic particle is an SiO_2 particle having an average particle size of 100 nm or less.

21. The copper paste according to claim 18, which further comprises a ceramic particle having an average particle size of 100 nm or less.